



A Water Operator's Guide to Creating a Lead and Copper Sample Site Plan

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Conducting a Materials Evaluation Survey

To identify sites that are susceptible to high lead or copper concentrations, you should survey all records documenting the materials used to construct and repair your distribution system and buildings connected to your system. Relevant information may be attained through the following sources:

- Plumbing codes
- Plumbing permits
- Distribution maps and drawings
- Inspection and maintenance records
- Meter installation records
- Permit files
- Existing water quality data
- Interviews with personnel and inspectors
- Community surveys

Tier 1 sites should be identified first. DEQ recommends you locate more sites than required in case a volunteer drops out of the sampling pool. If lead service lines are present, at least half of your samples must be from taps served by lead service lines. If you cannot locate enough Tier 1 sites to meet your monitoring requirements, Tier 2 sites should be identified. If there are insufficient Tier 1 and Tier 2 sites, Tier 3 sites may be used. Representative sites must be used if you cannot collect enough samples from tiered sites.

The selected sampling sites must be used in all subsequent monitoring periods. If you cannot gain access to an original sampling site, you must collect a tap sample from another site which meets the same tiering criteria as the original site and you must report any sampling site changes when submitting samples.

Please use the Materials Survey Worksheet form to document your materials survey investigation results.

Materials Survey Worksheet

PWS ID NUMBER

POPULATION SERVED BY PWS

Type of Structure	Location	Name	Phone	LSL	Interior Plumbing Material	Accessible	Tier

Key:		
<u>Type of Structure</u>	<u>Distribution System</u>	<u>Interior Plumbing Material</u>
BLDG – Building	LSL – Lead Service Lines	LP – Lead Pipe
MFR – Muti-family residence		CLSa82 – Copper Pipe with Lead Solder after 1982
SFR – Single family residence		CLSb83 – Copper Pipe with Lead Solder before 1983
		P - Plastic

PLUMBING MATERIALS TYPE Tier Assignment Key

Tier Assignment for CWS

Type of Structure	Type of Plumbing Material				
	Distribution System Piping	Interior Plumbing			
	LSLs	Lead Pipe	Copper with Lead Solder installed after 1982	Copper with Lead Solder installed before 1983	Non-lead Piping
SFR	Tier 1	Tier 1	Tier 1	Tier 3	N/A
MFR	Tier 2	Tier 2	Tier 2	Non-Tier	N/A
BLDG	Tier 2	Tier 2	Tier 2	N/A *	N/A

** Not applicable (N/A) unless an SFR was converted to a BLDG, then Tier 3

Tier Assignment for NTNCWS

Type of Structure	Type of Plumbing Material				
	Distribution System Piping	Interior Plumbing			
	LSLs	Lead Pipe	Copper with Lead Solder installed after 1982 **	Copper with Lead Solder installed before 1983	Non-lead Piping
BLDG	Tier 1	Tier 1	Tier 1	Non-Tier	N/A

** Excludes structures with solder installed after 1-6-91 (must use lead-free solder per PA Plumbing System Lead Ban and Notification Act); these sites would be N/A.

Key:	<u>Type of Structure</u>	<u>Distribution System</u>
	BLDG – Building	LSL – Lead Service Lines
	MFR – Multi-family residence	
	SFR – Single family residence	

LEAD AND COPPER SAMPLE SITE PLAN

Community and Non Transient Water Systems

I. Instructions

Read sections I, II and III thoroughly. Make sure section IV General Information is filled out completely. This form should be submitted at least (60) days before sample due date.

Once monitoring begins, you must use the same sites, unless a site is no longer accessible to you or no longer fits the requirements of a priority site (e.g., the lead services lines that served the site have been removed).

II. Minimum Number of Samples

The minimum number of samples you are required to take is based on the size of your system. Use the following graph to determine this number.

System Size	Minimum Samples to Include in Plan
> 100,000	100
10,001 – 100,000	60
3,301 – 10,000	40
501 – 3,300	20
101 – 500	10
≤ 100	5

* It is recommended that you identify more sampling sites than the number of samples you are required to collect during each monitoring period.

III. Choosing Sample Sites

Samples should be collected from an indoor kitchen or bathroom sink that is used on a daily basis. Samples should *not* be collected from outside spigots, water fountains, or sites with a treatment device or an additional form of water treatment.

The first-draw lead and copper samples must be collected from tier 1 sites. (Note: For those systems that have lead service lines, 50% of the samples must be collected from sites with lead service lines).

If there are not a sufficient number of tier 1 sampling sites available, then a system may complete its sampling pool with tier 2 sites. If there are not a sufficient number of tier 1 and tier 2 sampling sites available, then a system may complete its sampling pool with tier 3 sites. Any water system that cannot complete its sampling at sites that meet the applicable tier criteria must complete sampling at representative sites throughout the distribution system. These sites must have plumbing similar to that used at other sites served by the water system. *If any sample site is not tier 1, explain the reason for not using a tier 1 site in the space provided.*

Submit completed forms to: ddwreports@utah.gov or fax (801) 536-0070 or P.O. Box 144830 SLC, UT 84114-48303

IV. General Information

Date: _____ PWS Name: _____
PWSID No.: _____ Address: _____
Phone: _____ Fax: _____ Email: _____
Contact Person: _____ Title: _____
Population: _____ Minimum Number of Samples: _____

V. Sampling Site Recording

Use the following graph to determine the accurate tier.

Tier	Community Water System	Non-Transient Water System
Tier 1	<u>Single family residence with:</u> Lead pipes Lead service lines Copper pipes with lead solder installed after 1982	<u>Any buildings with:</u> Lead pipes Lead service lines Copper pipes with lead solder installed after 1982
Tier 2	<u>Buildings or multi-family residences with:</u> Lead pipes Lead service lines Copper pipes with lead solder after 1982	<u>Any buildings with:</u> Copper pipes with lead solder installed before 1983
Tier 3	<u>Single family residence with:</u> Copper pipes with lead solder installed before 1983	Not Applicable

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sample Site No. _____.

Tier (circle one): 1 2 3 Type (circle one): Routine Alternate

Street (or 911) Address: _____

Type of Structure: _____

Type of Plumbing: _____

Reason for not using a tier-1 sample site: _____.

Sampling Procedure Guidance:

The revised homeowner sampling instructions can be found on the following page. A copy of these instructions in Spanish can be found on the DDW website. Call Emily Frary at 801-536-0070 if you need help obtaining a copy.

The EPA revisions include the following recommendations:

- Do not remove the aerator prior to sampling
- Do not intentionally flush the water line before the start of the 6 hour period

Other helpful hints:

- Do not sample from a site that has a treatment device connected such as a point of use device, a point of entry device, or a water softener.
- Do not sample from a site that has not been used for a significant period of time such as a vacant home.
- Do not sample from a site where the water is not normally used for human consumption, such as a janitorial closet sink.
- Do not sample from outside spigots
- It is not recommended to sample from a site which has undergone recent plumbing improvements or changes including faucet replacement.
- Do not let uncooperative homeowners take samples.

Suggested Directions for Homeowner Tap Sample Collection Procedures

Revised Version: February 2016

These samples are being collected to determine the lead and copper levels in your tap water. This sampling effort is required by the U.S. Environmental Protection Agency and your State under the Lead and Copper Rule, and is being accomplished through a collaboration between the public water system and their consumers (e.g. residents).

Collect samples from a tap that has not been used for at least 6 hours. To ensure the water has not been used for at least 6 hours, the best time to collect samples is either early in the morning or in the evening upon returning from work. Be sure to use a kitchen or bathroom cold water tap that has been used for drinking water consumption in the past few weeks. The collection procedure is described below.

1. Prior arrangements will be made with you, the customer, to coordinate the sample collection. Dates will be set for sample kit delivery and pick-up by water system staff.
2. There must be a minimum of 6 hours during which there is no water used from the tap where the sample will be collected and any taps adjacent or close to that tap. Either early mornings or evenings upon returning home are the best sampling times to ensure that the necessary stagnant water conditions exist. Do not intentionally flush the water line before the start of the 6 hour period.
3. Use a kitchen or bathroom cold-water faucet for sampling. If you have water softeners on your kitchen taps, collect your sample from the bathroom tap that is not attached to a water softener, or a point of use filter, if possible. Do not remove the aerator prior to sampling. Place the opened sample bottle below the faucet and open the cold water tap as you would do to fill a glass of water. Fill the sample bottle to the line marked "1000-mL" and turn off the water.
4. Tightly cap the sample bottle and place in the sample kit provided. Please review the sample kit label at this time to ensure that all information contained on the label is correct.
5. If any plumbing repairs or replacement has been done in the home since the previous sampling event, note this information on the label as provided. Also if your sample was collected from a tap with a water softener, note this as well.
6. Place the sample kit in the same location the kit was delivered to so that water system staff may pick up the sample kit.
7. Results from this monitoring effort and information about lead will be provided to you as soon as practical but no later than 30 days after the system learns of the tap monitoring results. However, if excessive lead and/or copper levels are found, immediate notification will be provided (usually 1-2 working days after the system learns of the tap monitoring results).

Call _____ at _____ if you have any questions regarding these instructions.

TO BE COMPLETED BY RESIDENT

Water was last used: Time _____ Date _____

Sample was collected: Time _____ Date _____

Sample Location & faucet (e.g. Bathroom sink): _____

I have read the above directions and have taken a tap sample in accordance with these directions.

Signature _____

Date _____

Lead and Copper Certification:

1. Provide notices to the homeowners

Water systems must provide sample results to the customers who sampled for lead and copper in their homes.

The results must be provided to the homeowners within 30 days from when the water system receives the lab report

There is mandatory language, such as health information, in the notice that cannot be changed, but you may add to it or fill in the blanks with the information.

2. Let DDW know that you distributed the notice

Fill out the Lead and Copper Consumer Notice Certification Form and send to:

Utah Division of Drinking Water
Lead and Copper Manager
195 N 1950 W
PO Box 144830
Salt Lake City, UT 84114

Or email to ddwreports@utah.gov

We also have an electronic form that can be filled out at <http://tiny.cc/leadcopper>

Once DDW receives your certification, your LCNT Compliance schedule will be closed.

OPEN COMPLIANCE SCHEDULES	
Type	Required Activities
LCNT	Submit Lead/Copper Certification Notice to DDW
DEFY	
DEFY	STORAGE FACILITY SHOWS EVIDENCE OF LEAKAGE

CONSUMER NOTICE

Lead and Copper Water Sample Results

The _____ Water System, I.D. _____, is providing you with the lead and copper test results on the water sample collected at your location. Please share this notice with everyone who uses or drinks the water.

The results at: _____ Taken on: ____/____/____
are: **lead** _____ **mg/L** and **copper** _____ **mg/L**.

The maximum contaminant level goal (MCLG) is the level of a contaminant in drinking water below which there are no known or expected risks to health. MCLGs allow for a margin of safety. The action level is the concentration of a contaminant that, if exceeded, triggers treatment requirements or actions a water system must follow.

- The MCLG for lead is “0” and the action level is .015 mg/L.
- The MCLG and action level for copper is 1.3 mg/L.

The water system’s compliance with the Lead and Copper Rule (LCR) is calculated by using sample results collected from sites in our sampling pool. Your location’s lead or copper results may be higher or lower than the compliance calculation for the overall water system and does not reflect our water system’s compliance with the LCR. We will notify all water users if the lead or copper results from our water system exceed the action level.

For more information, please contact: _____
(owner or operator)
at () - or _____
(phone number) (address)

This notice is sent to you by _____ Water System on ____/____/____

How Lead Gets Into Water

Lead in drinking water most often comes from water distribution lines or household plumbing rather than from the water system source. Plumbing sources can include lead pipes, lead solder, faucets, valves, and other components made of brass. Lead from other sources (such as lead-based paint and contaminated dust or soil) can increase a person’s overall exposure, which adds to the effects of lead in water.

Potential Health Effects of Lead

The greatest risk of lead exposure is to infants, young children, and pregnant women. Lead can cause serious health problems if too much enters the body. Lead is stored in the bones and can be released later in life. Lead can cause damage to the brain and kidneys, interfere with production of red blood cells that carry oxygen, and may result in lowered IQ in children. During pregnancy,

the child receives lead from the mother's bones, which may affect brain development. Low levels of lead can affect adults with high blood pressure or kidney problems.

How Copper Gets Into Water

Copper is a mineral and natural component in soils. In the correct amounts, it is an essential nutrient for humans and plants. In Utah, most copper in drinking water comes from corrosion of household plumbing. Plumbing sources can include copper pipe and brass fixtures. Copper from plumbing corrosion can accumulate overnight.

Potential Health Effects of Copper

Although copper is an essential mineral in the diet, too much copper can cause health problems. Copper is widely distributed within the tissues of the body, but accumulates primarily in the liver and kidneys. A single dose of 15 mg of copper can cause nausea, vomiting, diarrhea, and intestinal cramps. Severe cases of copper poisoning have led to anemia and to disruption of liver and kidney functions. Individuals with Wilson's or Menke's diseases are at higher risk from copper exposure.

How you can reduce exposure:

- When your water has been sitting for several hours, flush the pipe by running the cold-water tap until the water is noticeably colder before using the water for drinking or cooking. **(The longer water has been sitting in the pipes, the more dissolved metals it may contain).**
- Use only cold water for drinking, cooking, and making baby formula. Hot water may contain higher levels of lead or copper.
- Frequently clean the filter screens and aerators in faucets to remove captured particles.
- If building or remodeling, only use "lead free" or low lead piping and materials. Avoid using copper piping or brass fixtures for locations where water will be consumed or used in food preparation (such as kitchen or bathroom sinks).

Lead and Copper Consumer Notice Certification Form

All Community and Non-Transient Non-Community (NTNC) water systems that conduct lead and copper monitoring must provide individual sampling results to the persons at each sample location. (UAC R309-210(7)(d).)

Notification of Results: The water system must provide the consumer notice as soon as possible, but no later than 30 days after learning the results.

Community water systems: You must provide individual sampling results to all residences for which you received lead and copper samples. In multi-unit structures, only notify each unit tested.

Non-Transient Non-Community water systems (NTNCs): You must notify all consumers who use water from the sample tap, even if they do not receive a water bill. NTNC water systems can post the notice in public areas or near taps, instead of delivering them to individuals.

Certification to the state: DDW must receive a sample copy of one consumer notice that was provided and a signed certification form (below) within 90 days after the end of the monitoring period.

To meet this reporting requirement, you may:

- Use the DDW Consumer Notice Template.
- Use the applicable EPA Consumer Notice template.
- Prepare your own Consumer Notice in conjunction with the state.

If you choose to produce your own Consumer Notice, it must include all of the following:

1. The sample results of the tap tested.
2. An explanation of the health effects of lead.
3. Steps consumers can take to reduce exposure to lead in drinking water.
4. The water system's contact information.
5. The maximum contaminant level goal (MCLG) and action level for lead, and the definitions of these two terms.

If you are responsible for multiple water systems, you can send to the Division of Drinking Water:

- A list of the water systems you provided Consumer Notices to, with name and PWS ID number.
- Send one copy of the Consumer Notice you used.
- Send one completed certification form (below).

Lead and Copper Results: Consumer Notification Certification Form

The water system must complete this section. The signature below certifies that the notice contains all required elements.

Complete the following items (check all that apply):

☐ **(Community Systems)** Mailed/delivered all Consumer Notices to the water users at all of the lead and copper sampling locations within 30 days of receiving the lead and copper results from the laboratory.

☐ **(NTNC Systems)** Notice posted at _____ on ____ / ____ / ____
within 30 days of receiving the lead and copper results from the laboratory.

Water System

PWS ID

Signature of owner or operator

Position

Date

Send a copy of this certification form to: Utah Division of Drinking Water, Lead and Copper Manager, 195 N 1950 W, PO Box 144830, Salt Lake City, UT 84114-4830, or email to ddwreports@utah.gov.

Example:

Creating a Lead and Copper Sample Site Plan

Step 1: Obtain relevant information to identify potential sample sites

Step 2: Conduct a Materials Evaluation Survey using the worksheet and collected information

Step 3: Decide on sampling sites and record in Sampling Plan

Step 4: Contact all homeowners and distribute Homeowner Instructions

Step 5: Sample

Step 6: Once you have received results from the lab, prepare and distribute Consumer Notice

Step 7: Fill out Consumer Notice Certification Form so DDW knows that you distributed your notices.

Materials Survey Worksheet Example

PWS ID NUMBER

01001

POPULATION SERVED BY PWS

65

Type of Structure	Location	Name	Phone	LSL	Interior Plumbing Material	Accessible	Tier
SFR	123 Main St	J. Smith	XXX	NO	P	✓	Non-Tier
SFR	500 S 100 W	K. Francis	xxx	NO	CLSa82	✓	1
MFR	2051 Lakeview Dr	L. Frary	xxx	yes	CLSa82	✓	2
SFR	600 N 100 W	M. Mouse	xxx	NO	LP	✓	1
SFR	1000 S 200 E	N. Drew	xxx	yes	CLSa82	✓	1
MFR	32 Spring Rd	O. Newton	xxx	NO	CLSa82	X	Non-Tier
SFR	700 N 100E	P. Pinky	xxx	yes	LP	✓	1
MFR	100 N 200E	Q. Hansen	xxx	NO	CLSa82	✓	Non-Tier
SFR	100 S 300 E	R. Rabbit	xxx	NO	CLSa82	✓	1
SFR	749 N 400 E	S. Sorensen	xxx	NO	CLSa82	✓	3
MFR	700 S 500 E	T. Todd	xxx	NO	CLSa82	✓	2
MFR	200 N 1000 W	U. Simpson	xxx	NO	P	✓	N/A

← Routine

← Routine

← Routine

← Routine

← Routine

Key: Type of Structure
 BLDG – Building
 MFR – Multi-family residence
 SFR – Single family residence

Distribution System
 LSL – Lead Service Lines

Interior Plumbing Material
 LP – Lead Pipe
 CLSa82 – Copper Pipe with Lead Solder after 1982
 CLSa82 – Copper Pipe with Lead Solder before 1982
 P – Plastic

Example

IV. General Information

Date: February 4, 2015 PWS Name: Test Water
 PWSID No.: 01001 Address: _____
 Phone: _____ Fax: _____ Email: _____
 Contact Person: Johnny Doe Title: Water Operator
 Population: 65 Minimum Number of Samples: 5

V. Sampling Site Recording

Use the following graph to determine the accurate tier.

Tier	Community Water System	Non-Transient Water System
Tier 1	Single family residence with: Lead pipes Lead service lines Copper pipes with lead solder installed between 1982 - 1988	Any buildings with: Lead pipes Lead service lines Copper pipes with lead solder installed between 1982 - 1988
Tier 2	Buildings or multi-family residences with: Lead pipes Lead service lines Copper pipes with lead solder installed between 1982 - 1988	Any buildings with: Copper pipes with lead solder installed before 1983
Tier 3	Single family residence with: Copper pipes with lead solder installed before 1983	Not Applicable

Sample Site No. 1
 Tier (circle one): ① 2 3 Type (circle one): Routine Alternate
 Street (or 911) Address: 500 S 100 W
 Type of Structure: SFR
 Type of Plumbing: CVS a 82
 Reason for not using a tier-1 sample site: N/A

Sample Site No. 2
 Tier (circle one): 1 ② 3 Type (circle one): Routine Alternate
 Street (or 911) Address: _____
 Type of Structure: MFR
 Type of Plumbing: lead service line → CVS a 82
 Reason for not using a tier-1 sample site: Not enough Tier 1 sites